

Impacts on Anxiety When Mandala Art Making is Combined with Visual Journaling

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Institutional Review Board (IRB)
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Dear Katelyn,

This letter serves to officially notify you of approval by the Albertus Magnus College IRB for you to conduct your study on mandal making and its effect on anxiety and mindfulness as described in your IRB application. Please ensure that the confidentiality of your research participants is properly protected and that you remain within the boundaries you stated in the IRB application. If those boundaries change in relation to the study participants, please notify the IRB as an amendment may be necessary.

Your study is authorized to begin as of the date of this approval letter and is valid for one year, ending on Fe. 9th, 2022.

If you have any questions, please contact Dr. Joshua Abreu, the IRB Administrator, by e-mail at jabreu1@albertus.edu.

Sincerely,

Joshua Abreu, Ph.D.
IRB Administrator

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Abstract

This study investigated the impact mandala making had on lowering anxiety and increasing mindfulness across two conditions--single mandala making and repeated mandala making in a visual journal, over time. Participants ($N = 31$) were randomly assigned to one of the two conditions. All participants were administered Spielberger's (1987) State Anxiety Inventory (SAI) to measure anxiety, and Baer's (2006) Five Facet Mindfulness Questionnaire (FFMQ) to measure mindfulness, both in pre/posttest format. Results showed no increase in overall mindfulness and a marginally significant decrease in overall anxiety. This decrease was most exemplified through visual observation of the journaling condition. Further studies should be conducted to explore the use of mandala journaling for the reduction of anxiety and impact on mindfulness.

Impacts on Anxiety When Mandala Art Making is Combined with Visual Journaling

Anxiety disorders are prevalent in the United States and impact an individual's behavior, relationships, and work performance (National Institute of Mental Health, 2017). Impairment of these daily activities affect 31.1% of the U.S. adult population at some point in their lives (National Institute of Mental Health, 2017). Specific anxiety disorders include generalized anxiety disorder (GAD), social anxiety disorder (SAD), panic disorder, and separation anxiety disorder. Symptoms of these disorders may be restlessness, rapid heart rate, shortness of breath, worrying, and intense fear (Anxiety Disorders SB, 2017). Due to its prevalence and the significant impairment it causes, effective methods of treatment must be continuously evaluated in order to address symptom management, thus increasing quality of life for those who suffer from anxiety disorders.

Anxiety can be experienced as a dysregulation of emotions. Those who suffer with anxiety report losing the ability to attune to their body to enact control and relaxation (Fresco et al., 2004). According to Fresco et al. (2004), those with anxiety have a heightened emotional intensity that they may find difficult to understand and identify, creating maladaptive responses to their own emotional state. Perceiving the nuances of minor emotional expression is an inherent part of communication and understanding others. Those with Social Anxiety Disorder have been found to be at a greater disadvantage for this form of adaptation (Anderson et al., 2015). With an impaired regulatory system, properly detecting and attuning to emotions that impact the formation of relationships may prove to be challenging.

To promote emotional understanding and well-being, several techniques have been developed to help those with anxiety. For example, mindfulness techniques have now become more widely used within modern psychology (Bond et al., 2015). There have been growing

developments in standardized mindfulness-based interventions to help focus a wandering mind, adapting the initial techniques that originated from Eastern traditions. Some of the most recognized techniques to develop mindfulness skills are meditation, and saying mantras as repetitive phrases. Mindfulness can be described as a practice that helps a person intentionally and non-judgmentally become consciously aware of the present moment (Merriam-Webster, 2020) and encourages repetition practices. Mindfulness-based stress reduction (MBSR) and mindfulness-based cognitive therapy (MBCT) are the most widely accepted interventions used in the field of mental health today. These models consist of eight group sessions that incorporate mindfulness training along with other therapy techniques to teach individuals how to come into awareness, then relate to thoughts, feelings, and emotions in a nonjudgmental manner (Cavanagh et al., 2013).

Some empirical studies have examined mindfulness-based therapies and their efficacy. Hofmann et al. (2010) completed a meta-analysis study that focused on the effectiveness of mindfulness-based therapy (MBT) for the reduction of anxiety and depression symptoms. Using 727 articles where MBT was identified, the researchers narrowed their evaluation to 39 studies. Of those studies, 1,140 participants with a diagnosis of psychological or physical/medical disorder engaged in a pre-/posttest treatment of various mindfulness-based therapy techniques. Cross examination of the 39 studies to elicit effect-size estimates illustrated that MBT was moderately effective in reducing anxiety symptoms (Hedges's $g = 0.63$) and depressive symptoms (Hedges's $g = 0.59$), and greatly effective in reducing those symptoms in patients with anxiety disorders (Hedges's $g = 0.97$) and depression (Hedges's $g = 0.95$).

Additionally, Coghill et al. (2014) conducted a study using magnetic resonance imaging (MRI) to compare the effectiveness of attending to the breath (ATB; pre-meditation training)

with mindfulness meditation (post-meditation training) for anxiety reduction. Researchers hypothesized that mindfulness meditation would be more effective than ATB in reducing anxiety, due to mechanisms in the brain that control emotional regulation. Participants were administered the Freiburg Mindfulness Inventory (FMI) pre-test before the first MRI session. The State Anxiety Inventory (SAI) was administered in a pre/posttest manner with both MRI sessions. In session one, participants were first asked to close their eyes and rest (no-distraction condition), and then asked to focus on their breath (ATB). Neural and noxious stimulation was randomly administered during the session, and heart rate and respiration rate were measured. Participants then completed a four-day meditation training, with SAI pre/post-test daily. The MRI session two first began with participants again in a no-distraction condition, followed by being asked to engage in mindful meditation. Neural and noxious stimulation was again randomly administered during the session, and heart rate and respiration rate were measured. The FMI post-test was administered at the completion of the second MRI session. Results showed a significant decrease in anxiety levels in the MRI readings during the second session, as compared to no change in state anxiety during the first MRI reading. Researchers observed how meditation engaged brain mechanisms involved in cognitive control of emotions and sensory evaluation, which is inversely related to anxiety (Coghill et al., 2014). These findings support mindfulness meditation as an effective tool in anxiety reduction.

The practice of intentionally becoming aware of the present moment can also be applied within the field of art therapy. An integration of creativity, psychological theory, and human services in the pursuit of improved functioning and emotional growth are aspects that define the purpose of art therapy (American Art Therapy Association, 2017). Art making is a means of communicating one's inner consciousness through symbols and metaphors, without the need for

direct vocalization, as that can be challenging to have complete awareness of thoughts and emotions. For individuals who are dysregulated and find attuning to their emotional needs difficult, art therapy can provide a physical representation of communication to explore these processes better and promote integration (Bjorklund et al., 2013).

Examining the many applicable treatments for anxiety is important research within the field of art therapy. Abbing et al. (2019) studied the effectiveness of art therapy in reducing anxiety symptoms in fifty-nine women diagnosed with generalized anxiety disorder, social anxiety disorder or panic disorder. Participants were divided into two groups. The Quality of life (QoL) measure and emotion regulation (ER) measure were administered, and art therapy participants received ten to twelve individual sessions over a three-month period. The comparison group did not receive art therapy and continued their own personal treatment for the same three-month period. Results indicated a significant decrease in anxiety, and consistent improvement of QoL. These results are an indication that the practice of self-expression through imagery holds potential in the success of art therapy for the treatment of anxiety.

Mindfulness practices have been prevalent for generations across cultures, however, their role within art therapy continues to be researched. Additionally, one of the elements of mindfulness is the repetitive focus on a word, an image, a thought, or a phrase. Focusing on and creating mandalas has been a common element when adapting mindfulness practices. Mandalas have been observed in spiritual art forms and architecture around the world. Carl Jung was the first therapist to use the healing qualities of mandalas, also defined as a “magic circle” in Sanskrit. Jung had discovered through his work that mandalas appeared in patients’ artwork and dreams during times of internal confusion. He began to use the mandala as part of treatment so patients could communicate their dreams without therapist interpretation, while promoting

independence by learning and understanding their own symbols (Slegelis, 1987). Based on the literature, it also appears that mandala studies are often correlated with mindfulness-based practices.

In Hinduism, to create a mandala through paint or chalk is to create an image of the higher self. It has been theorized that many cultures utilize the mandala to explore an inner truth that relates to the self, the archetypal Self, and one's surroundings, while creating connection as a way to heal (Mark, 2020). Within art therapy, this process can be simplified to bring focus to the visual symbols and metaphors that emerge within a circle. By providing a circle as a container for individuals to make art, many have found that unconscious unique patterns emerge into conscious awareness (Slegelis, 1987).

Directives to create and color mandala drawings have become quite common within the field of art therapy. Slegelis (1987) offered one of the first experimental mandala theories. She examined perceived negative emotional state by measuring the number of angles created within a circular or square outline, questioning whether lines evoke specific emotions. She hypothesized that the number of angles would correlate with a more negative emotional state, while circular formations would promote a sense of calmness. Thirty-two participants were asked to create spontaneous images within either a square or circle template for two minutes. It was found that those who worked within the square created more angular lines than those who worked within the circle. The researcher concluded that positive affect was found in the drawings of those in the circle group, as indicated by softer lines and happier themes.

Building on Slegelis (1987), Babouchkina and Robbins (2015) incorporated instructions for mandala making and asked participants to write short essays to provide a more well-rounded examination on the impact that creating mandalas had on emotional state. Participants of the

study ($N = 67$) were randomly assigned to four groups: mandala creation with instruction to express emotion, free mandala creation, coloring a square with instruction to express emotion, and free coloring a square. The Profile of Mood States (POMS) assessment was administered for the first of three assessments in a pre/posttest method. Analyses indicated a significant decrease in negative mood within circle conditions, as compared to the square condition. The researchers concluded that the soothing nature of circles provided the backbone to discovering the healing properties of the mandala and further suggested its value for use in clinical treatment.

Drawing mandalas has been empirically studied as both a single intervention and over time (Curry & Kasser, 2005; Henderson et al., 2007; Serice & Vennet, 2012). Numerous studies have examined quantifiable change in order to determine whether the impacts that mandala-making has include symptom relief for those experiencing anxiety. Henderson et al. (2007) conducted a study to examine the creation of mandalas with ($N = 36$) participants who had post-traumatic stress disorder (PTSD) symptoms, as measured by the Posttraumatic Stress Disorder Scale. Researchers hypothesized that symptoms of physical illness, depression, and anxiety would be lowered after making mandalas. Participants were randomly assigned to control or experimental groups with artmaking over three consecutive days. They were administered the Posttraumatic Stress Disorder Scale, Beck Depression Inventory-II, State-Trait Anxiety Inventory, Spiritual Meaning Scale, and the Pennebaker Inventory of Limbic Languidness. One group drew mandalas while the other group participated in object drawing sessions. ANCOVA results indicated improvement of PTSD symptom severity in the mandala creation group but no significant differences on any other measures. At the one-month follow up, participants in the mandala group experienced fewer trauma symptoms than those in the object drawing group.

Gorham et al. (2012) examined the use of mandalas and related reduction of anxiety with fifty-seven undergraduate students. Participants were randomly assigned to two groups, control or experimental, and were administered the State-Trait Anxiety Inventory (STAI) as a pre/posttest measure of change in anxiety. Participants in the experimental group were asked to choose an art-making activity to engage with for thirty minutes (mandala, free painting, collage, clay, and drawing). The data from the experimental group were assessed by a one-tailed, paired *t*-test, which showed a significant reduction in the group's mean state and trait anxiety. Comparatively, the control group's pre- and post-activity scores showed no significant reduction. While not conclusive on its own, this research suggests that more examination of mandala making and anxiety would be useful.

As stated in the above research, engaging with art materials may promote a reduction in anxiety, as it helps individuals express their inner thoughts and feelings. Each medium and technique gives a greater or lesser sense of structure based on the art media chosen as well as the directive that is suggested to guide the client. There may be a more conclusive relationship between structure and anxiety symptoms, as noted in a study by Curry and Kasser (2005). They designed a study in which they examined correlations between degrees of structure during art making, which included creating mandalas. Participants colored either a mandala design, a plaid design, or a blank piece of paper, and levels of anxiety were measured. Researchers hypothesized that coloring a complex mandala design, with all its intricacies, would allow for individuals to enter a meditative state and lower anxiety levels more than free drawing on a blank piece of paper. The plaid design group was included to distinguish between the impact of coloring complexities with structure and coloring mandalas.

Participants ($N = 84$) were administered the State Anxiety Inventory (SAI), followed by an anxiety induction exercise. The SAI was administered once more before participants were randomly assigned to three art-making groups, and the study concluded with a final SAI administered. The results of ANOVA and t -test supported the hypothesis, with mandala coloring being more effective in lowering anxiety compared to the free-draw group. Mandala group anxiety levels were lower than plaid drawing groups, but this difference was not significant. These findings suggest that providing structure to mandala making or coloring (with plaid) provided a more positive effect on anxiety reduction.

A replication of the Curry and Kasser (2005) study was conducted by Serice and Vennet (2012). Participants ($N = 50$) were randomly assigned to the same three groups (mandala design, plaid design, blank paper) and were administered the State Anxiety Inventory (SAI) pretest. This was followed by a 4-minute writing exercise to induce anxiety, followed by art making. The study concluded with the SAI posttest. The results of ANOVA were consistent with the hypothesis, confirming Curry and Kasser's (2005) findings that a greater reduction in anxiety occurred within the mandala-making group. Differing from Curry and Kasser (2005) however, the researchers found that the mandala group showed a reduced level of anxiety significantly more than the plaid group.

In another comparative study, the relationship between mood, anxiety and mindfulness was examined by comparing unstructured/structured mandalas with free expression/directed drawing. The unstructured mandala depicted a blank circle outline on paper, whereas the structured mandala consisted of an intricate line pattern within a circle on paper. Instruction for mandala making was as free expression, participants completed the task as they wish, or directed, participants were asked to express their current emotional state. In a mixed

experimental design, Campeni and Hartman (2019) hypothesized that undergraduate participants ($N = 69$) would experience anxiety reduction, improved affect and mindfulness after participating in all four conditions. After being administered the State-Trait Anxiety Inventory (STAI), Positive and Negative Affects Scale, and State Mindfulness Scale, participants completed their art making. A written reflection was collected along with posttest measures. Results supported the hypothesis and that participants would experience a significant decrease in anxiety and significant increase in positive affect and mindfulness across all conditions when comparing pre- and posttest scores. These findings illustrate the impact and healing qualities mandala making can have on mindfulness and anxiety. However, mixed results from research outcomes suggests that more inquiry about mandalas is needed.

As noted previously, some theorists have posited that the circle creates a container, or boundary, for an individual to work within and feel safe (Slegelis, 1987). Furthering the concept of a created container, visual journaling also provides an individual with a space for self-expression and structure that incorporates art making without writing. In this way, the title “journal” can be misleading; however, for the purposes of this study, the term visual journaling will suggest only art making within a book-like format.

There is only minimal research in the literature on visual journaling, an ongoing practice of entering images and doodles into a bound document. One study by Mercer et al. (2010) examined whether using a visual journaling intervention would lower stress and anxiety levels and increase affect, the outward expression of emotion, for ten participants. The State-Trait Anxiety Inventory and Positive and Negative Affect Schedule were administered as pretest and posttest measures. Additionally, participants drew stressful images in their journal during sessions through guided visualization and engaged in free journaling for two weeks. Data

analysis using *t*-tests showed a slight decrease in anxiety levels and moderate change in affect after the journaling intervention, however, the small sample and corresponding low statistical power may have been responsible for the lack of a statistically significant finding.

Further, the long-term effects of a visual journaling intervention were researched in a six-week pilot study, conducted to examine the reduction of anxiety, depression, stress, and trauma symptoms; the study focused on two military veterans as participants (Mims, 2015). The Clinical Outcomes in Routine Evaluation-Outcome Measure (CORE-OM) pretest was administered, followed by six weekly visual journaling art therapy sessions, an interview, and a CORE-OM posttest. Thematic analysis of the interviews suggested that increased self-knowledge and self-confidence was evidenced at the completion of this study. Further study with a larger sample size and formal statistical analyses is needed to examine relationships between visual journaling and anxiety reduction.

The literature has shown that creating mandalas can decrease anxiety while the use of visual journals, a technique still being formally researched, has been examined in small studies and may also contribute to positive goals. This proposed study will compare the experience of single mandala drawing with repetitive mandala drawing by ongoing visual journaling.

For this present study, it was hypothesized that participants who engaged in repetitive visual journaling with mandala making over time would have a greater decrease in anxiety levels than those who engaged in a single mandala drawing experience. Additionally, it was hypothesized that those in the visual journaling condition would demonstrate a larger increase in the level of mindfulness than those who made a single mandala.

Method

Participants

Participants ($N = 31$) were recruited through a social media posted flyer (Appendix A), and snowball method. Participants were given the incentive of keeping all art materials upon completion of the task, and randomly assigned to either single mandala condition ($n = 16$) or mandala journaling ($n = 15$). Ages ranged from 18 to 56 ($M = 32.9$; $SD = 11.1$) with a higher frequency of female participants to male, 19 to 12. Diverse ethnic and racial backgrounds were included, with Caucasians making up 67.7% of the sample, Black/African-American =19.4 %, Asian =9.7 %, Other Pacific Islander, Hispanic/Latinx and preferred not to respond 3.2%. Participants were asked if they had practiced meditation before in a yes or no format, with total and both conditions results being fairly even (Single mandala: 7 yes; 8 no; 1 preferred not to respond and Mandala journal: 9 yes; 6 no).

Instruments

State-Trait Anxiety Inventory (STAI)

Spielberger's State-Trait Anxiety Inventory (STAI) is a widely used self-evaluation questionnaire to measure anxiety. It is divided into two parts to measure the state anxiety (A-state), concerning the temporary perceived anxiety, and the more consistent and stable trait anxiety (A-trait). Each form consists of 20 questions and has individuals rate answers on a 4-point Likert-type scale, from "not at all" to "very much so". Higher scores indicate greater anxiety (Spielberger, 2010). Metzger (1976) conducted a study using the STAI and divided participants into a stress group and no-stress group to analyze validity and reliability. The test-retest reliability for A-trait was .97, and .45 for A-state. Results of t -tests showed that the no-stress group A-state was significantly lower than the stress group A-state, and there was no

significant difference of A-trait in either condition. Julian (2011) reported internal consistency Cronbach's alpha coefficients ranging from 0.86 to 0.95 for the STAI. Correlations between the STAI-T factor subscales (depression, anxiety, positive polarity and negative polarity) and total score with the BDI-II, TDI, and the BAI were measured in a convergent validity study (Balsamo et al., 2013). Correlation was found to be high among all measures (r between .88 and .96), despite a stronger correlation for the "Depression" factor ($r = .96, p < .01$) than for the "Anxiety" factor ($r = .88, p < .01$). These results indicate that the STAI is a reliable and valid measure of an individual's trait and state anxiety. For this study, only state anxiety will be evaluated and scored.

Five Facet Mindfulness Questionnaire (FFMQ)

Baer et al. (2006) developed the FFMQ, a 39-item self-report measure that evaluates mindfulness using five facets: Observing, Describing, Acting with awareness, Nonreactivity to inner experience, and Non-judging of inner experience. The FFMQ rates answers on a 5-point Likert-type scale, with answers ranging from "never or very rarely true" to "very often or always true" (Baer et al., 2006). Scores for each category may be totaled and divided by the number of categorical items, or the total sum of the FFMQ may be divided by thirty-nine to get an average item score.

Bailey et al. (2018) conducted a validity study of the FFMQ with older adults, using the Positive Negative Affect Scale and the Emotional Regulation Questionnaire as comparative measures. Internal consistency alpha coefficients ranged from .72 to .85. Convergent validity was measured by correlating each subsection of the FFMQ to positive affect, negative affect, cognitive reappraisal, and emotional suppression. All subscales, with the exception of non-judgment, positively correlated with positive affect ($p < .01$). All FFMQ subscales negatively correlated with negative affect, except observing ($p < .01$). Cognitive reappraisal was

positively correlated with the subscales ($p < .01$), excluding non-judgment. Three subscales (describe, acting with awareness, and non-judgment) were negatively correlated with emotional suppression ($p < .01$). Baer et al.'s (2008) construct validity study of the FFMQ with meditating and nonmeditating groups found adequate to good internal consistency with alpha coefficients ranging from .72 to .92, with the exception of Nonreactivity to internal experience with alpha ranging from .67 to .86, depending on the student sample.

Materials

A single white 12 by 8 in. (30.48 by 20.32 cm) piece of paper was provided for those only making a single mandala. A blank 8 x 6 in. (20.32 by 15.24 cm) journal consisting of ten pages was provided for the mandala journal group members. All participants were provided with a 5 in. (12.7 cm) cardboard circle template, a #2 pencil with eraser, and their own set of Crayola© 12-pack of colored pencils.

Procedure

The experiment was conducted with social distancing and synchronous participation via a digital platform. Participants were randomly assigned to one of two conditions: make a single mandala (Mandala Group) or visual journal mandala making over time (Visual Journal Group). A Google Forms sign-up sheet was provided by the researcher for participants to choose their own individual time slot. Upon completion of this, a Zoom link for the scheduled time was provided through email. All participants were emailed an informed consent (Appendix B), image release form (Appendix C), and demographic survey (Appendix D) to be signed and returned at the beginning of their session. After review of the required documents, an attachment of the SAI and the FFMQ reformatted into Google Forms format to assure confidentiality and anonymity, was sent through email to be completed before art-making.

Mandala Group participants were instructed to complete the objective measures pretest, then create a circle outline using the provided circle template, pencil, and paper. The researcher described mandala-making as, “Take a moment with the circle form you have just drawn and allow any images and colors to come into mind. Begin to create these spontaneously, letting them naturally take shape. The outline of the circle is not a wall, but a guide. Try to fill in the entire circle, as best you can.” Participants were given 20 minutes to complete a mandala design as they saw fit. Brief conversation regarding their artwork occurred, and a Google Forms sign-up link for a follow-up meeting was emailed at the end of session. About five days later, the participants virtually met again with the researcher through Zoom to complete the SAI and FFMQ posttest. The debriefing form (Appendix E) was provided, and artwork photos were obtained via screen shot for those who signed the image release form.

The Visual Journal Group received a take-home journal through the mail or was dropped off before the initial virtual meeting. After signing all required documents, participants completed the SAI and FFMQ pretest through Google Forms. They were then asked to first create a circle in their journal using the provided template, and then fill in the circle to create a mandala design with the same instruction as the singular mandala group. They were asked to do this subsequently every day for five days on their own, and to work on the design for only 20 minutes each time they would draw. The researcher emphasized that no writing was to occur in the visual journal, only repetitive mandala drawings. The researcher sent a daily reminder via email, at the same time for all participants to maintain participant consistency. After approximately five days, participants in Visual Journal Group virtually met again with the researcher through Zoom and completed the SAI and FFMQ posttest in Google Forms format.

Following objective measures completion, participants were given a debriefing form, and the researcher obtained photos via screenshot for those that signed the image release form.

Results

Higher scores on the State Anxiety Inventory indicate a higher presence of anxiety. To determine the degree of anxiety, ten out of the twenty items are anxiety present items (ex. “I feel jittery”) that are directly scored. The remaining ten items are anxiety absent (ex. “I feel secure”), which are reverse scored. All items are added for a total score which can range from 20 to 80. Scores within the 20-37 range are commonly classified as ‘no to low anxiety’, 38-44 as ‘moderate anxiety’, and 45-80 as ‘severe anxiety’.

The Five Facet Mindfulness Questionnaire is made up of five subscales: observing, describing, awareness of actions, non-judgment of inner experience, and non-reactivity of inner experience, that may each have their own subgroup score. Twenty of the thirty-nine items are adverse statements (e.g., “I criticize myself for having irrational emotions and thoughts”), that are reverse scored. The remaining nineteen items are mindfulness positive statements (e.g., “I can describe my feelings well”), that are directly scored. All items are added to arrive at a total score. Scores may range from 39 to 195, with a higher score indicating greater mindfulness.

The mean scores of the pre/posttest administrations of the SAI across both conditions were within the ‘no to low anxiety’ range of 20-37 (pretest, $M = 34.8$; posttest, $M = 32.2$). For the FFMQ, the mean scores were found to be in the upper middle-range of mindfulness (pretest, $M = 133.6$; posttest, $M = 133.7$). Complete descriptive statistics for the SAI and FFMQ including means and standard deviations of pre/posttest measures for both conditions are presented in Table 1.

A 2 x 2 mixed Analysis of Variance with the within subject variable of time (pre vs. post) and between subject variable of group (single mandala vs. mandala journaling) was run on the total scores of the SAI. There was a marginally significant main effect of time, as there was a 2.8 point mean decrease in SAI score from pre- to posttest, $F(1, 28) = 3.90, p = .058$. Even though the mean raw score difference between groups was 2.1, that main effect was not statistically significant, $F(1, 28) = .46, p > .05$. For the key effect, the interaction between group and time, there was not a significant effect, as there was only a .6 point difference between the SAI decrease for the two groups, $F(1, 28) = .05, p > .05$.

The same Analysis of Variance run on the total scores of the SAI was performed on the total scores of the FFMQ. There was no significant effect of time, as there was less than a .1 point change in the mean scores from pretest to posttest, $F(1, 29) = .01, p > .05$. Between the two conditions there was a mean raw score difference of 3.5, but that main effect was not statistically significant either, $F(1, 29) = .40, p > .05$. The interaction between groups and time, being the key effect, indicated that the single mandala condition led to a 6.1 point larger increase in FFMQ score than for the mandala plus journaling condition, but this difference also was not significant, $F(1, 29) = 3.27, p > .05$.

Discussion

The purpose of this study was to examine the effects singular and repeated mandala making had on anxiety and mindfulness. Although the pre/posttest results were not significant in increasing mindfulness, many participants expressed how they were able to “let go” during the process and enjoy the present moment of art making. Results also reflected a trend in

lowering anxiety across both conditions, implying that mandala making should continue to be studied as an effective intervention for lowering anxiety with a larger sample size to increase statistical power.

Participants in the mandala journaling condition did not exhibit a greater decrease in measured scores of anxiety as hypothesized, however, some interesting themes and patterns emerged when reviewing the artworks as they were grouped into the top and bottom percentile for change in anxiety. A closer examination showed that the group with greater reduction in anxiety were primarily from the journaling condition, while those that showed an increase in anxiety had fewer participants in the journaling condition. This suggests that there may be some unmeasured benefits from repeated mandala making over time, which is similar to the original hypothesis. Prior research (Mercer et al., 2010; Mims, 2015) on visual journaling supports this, however, those studies have collected data spanning a larger amount of time. It may be that the experimental window (5 days) was too narrow to reflect the benefits of visual journaling.

Overall, scores that reflected mindfulness did not show any significant change during this study. The journaling condition also did not produce a greater increase in mindfulness scores as hypothesized. At their core, mindfulness practices are repetition-based, and this study aimed to use that ideology through repeated mandala making in the journaling condition. However, the repetitive nature of this condition did not appear to translate into measurable terms. Their visual journaling also only spanned across five days, which may not have been enough time for the effects of habitual practices to make significant change. Further, the art making focused on the circle form. The instructions were meant to mimic the mindfulness practice of becoming aware of the self in the present moment. Participants were not asked to become aware of their own body or to sit quietly before art making, as it was hypothesized that that act of making mandalas

would provide enough mindfulness elements to evoke relaxation and centering. However, the results suggest that it may be necessary to add the mindfulness-based practices of guided imagery, deep breathing exercises, and instruction to become aware of the body in order to increase levels of self awareness and mindfulness.

Three themes in the artwork were identified: creative elements, color range and symmetry. Creative elements can be understood as various line movements, shapes, and/or images that make up the entire mandala or the page it is created on. It was noted that for the group with greatest anxiety reduction, there were more extensive levels of creative elements along with a wider color range and symmetrical imagery. Figure 1, drawn by a 29 year-old Caucasian female in the single mandala condition, exemplifies these qualities. Divided into eight segments, each individual part is a different color with varying lines and shapes. Following the theory of Slegelis (1987) that the circle is a container for unconscious material, it can be reasoned that the inclusion of many creative elements may indicate a greater revelation of unconscious material. The creative mandala making with a wide color range and symmetry, may have assisted in relieving anxious feelings.

Both Figure 2 and 3 were created during moments of self-doubt, but the techniques in working with anxiety were approached very differently. Figure 2, drawn by a 20 year-old Black/African American female in journaling condition, also demonstrates the formal creative qualities. This participant was in the journaling condition, who also had a large reduction in anxiety. Multiple images from journaling contained a range of colors and shapes, each suggesting their own energy and sense of movement. One image resembling a checkerboard diverges from the other images. The participant stated that it was created when she “didn’t know what to do.” However instead of simply coloring the mandala a solid color, they chose to create

a more intricate and symmetrical linework with individually colored squares. This self-soothing technique stands apart from techniques seen in the anxiety increase group, such as Figure 3, which was created by a 27 year-old Asian male, in the single mandala condition. This image shows a solid yellow color mandala with the center only faintly colored. It does not show a focal point or internal lines or shapes. During this creation, the participant had expressed their anxious feelings about not knowing what to create. Much of the experimental time was spent trying to visualize creation without putting pencil to paper.

Additionally, certain distractions occurred due to the study being virtual and in home conditions. Small children pulled the attention of participants, vaping was observed during art making, and one participant even had a work dispatch radio on in the background. Figure 4, drawn by a 54 year-old Caucasian male in single mandala condition appears to reflect the content of the dispatch radio. A clear depiction of the fire truck that was described over the work radio indicates that the participant was in the present moment, but that the moment's attention may not have been free to assess internal emotions. It stands to reason that such distractions, which would not be present in a standard research study environment, may have impacted participant's present state of emotions.

In the traditional creation of mandalas, bilateral and radial symmetry is commonly used for the depiction of higher self or the universe. Repeated intricate patterns tell a story of religion or cultural beliefs. The inclusion of symmetry was not a requirement for this study, however, it should be noted that those in the greatest anxiety reduction group illustrated a more prominent use of this component. This suggests that the concept of structure may be important to add to the directive as a variable to help reduce anxiety, as Curry and Kasser (2005) and Campeni and Hartman (2019) found. Given these results, the use of structure might focus on symmetry. In

both of these prior studies, patterns or linework for the “structure” of the mandala was already provided to the participants, instead of allowing for individual creation. Research should be continued on the potential benefits of self-created symmetry and patterns within mandalas, and its effect on anxiety and mindfulness.

One of the outcomes from this research was an unintended perception of the mandala journaling condition as homework rather than relaxation. Prior research of journaling in art studies suggested that having the ability to reflect on past entries and having a specific place to hold these emotions was beneficial. In this study however, participants suggested that they perceived the journaling as “doing homework” or “completing an assignment,” rather than integrating the journaling as self-care. These reactions may have affected levels of anxiety or mindfulness, contrary to the intention of incorporating art journaling.

The relationship between symmetrical markings and reduction in anxiety may also be applied to clinical practice. Art therapists might intentionally create segments in mandalas to provide structure for mood balancing sessions, or develop other art directives that focus on symmetry-based work for the purpose of lowering anxious emotions. Art therapists may also benefit from continuing to explore visual journaling work. Clients may create their journal in session to promote self-efficacy and mindfulness practices, which could then be mimicked by them continuing journal entry on their own. Visual journaling offers a designated safe place for thoughts and emotions, that client and therapist could look back on together when the client feels safe and ready.

There were some limitations that were reflective of research that was conducted in an exclusively virtual format. Participants were required to complete various tasks on their own, creating uncontrolled variables that may have impacted the outcome. Further, participants did not

follow the plan for follow-up meetings in a consistent manner. This inconsistency of time frames, and possible stressed feelings of missing an appointment, may have affected the final measured scores of anxiety and mindfulness. In conjunction with this, it is unknown to the researcher whether those in the mandala journaling condition were consistent in their own scheduling of art making every day for five days. For future researchers, this design flaw may be mitigated by more frequent check-ins between journaling condition participant and researcher. This may be done through sending an image of the work every day at completion or responding to an emailed message to insure participant consistency. It may be beneficial to have participants commit to both sessions at one time to help deter potential cancellations. Further, a longer time art making might alleviate some pressure to “complete” an image and give space for free thought. Another method may be to keep the five-day time frame, but allow the participant to decide how many entries to include in their visual journal. This variable would need to be factored into the study itself, however letting go of the adamant consistency may provide the participant with a sense of self efficacy, as they would need to determine for themselves when to make time for their journal entries. This space may be what is needed to become more in tune with their emotions.

The results of this study help to create new perspectives on anxiety, mindfulness, mandalas, and visual journaling. Future researchers should continue to explore these topics to grow and expand on the potential interactions with one another. Mandala creation has reached across cultures throughout history, yet there is still much to learn about their healing properties. From this present study, it can be theorized that the inclusion of symmetry and various linework is connected to decreased anxiety. Therefore, a question raised to be answered by future research is, “Does mandala creation in quadrants elicit greater decrease in anxiety than free form

mandalas?” Through this investigation, beneficial techniques on expressing and integrating the self, and promoting mood balance could be discovered for the benefit of the field of Art Therapy.

In summary, the mandala’s healing properties have been researched for many years, yet there is still much unknown within this “magic circle.” The present study suggests a trend towards the positive impact of mandala making and visual journaling, which offers many opportunities for the treatment of anxiety and promotion of well-being. It has also shown the pattern of symmetry and creative elements within visual journaling, providing artistic indicators for future art therapy work and studies.

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Table 1*Mean SAI (State Anxiety) and FFMQ (Mindfulness) across Art-making Conditions and Time*

Measure	Condition	Pretest	Posttest	Pre/Post Change
		<i>M</i> (SD)	<i>M</i> (SD)	<i>M</i>
SAI	Single Mandala	36.1 (11.9)	33.1 (9.00)	3.0
	Mandala Journal	33.7 (7.91)	31.3 (7.81)	2.4
FFMQ	Single Mandala	133.8 (14.12)	136.8 (16.13)	3.0
	Mandala Journal	133.4 (16.04)	130.3 (17.40)	-3.1

Figure 1

Mandala with Creative Elements, Segmentation and Symmetry



Note. 29 year-old Caucasian female, in single mandala condition, with decreased anxiety and increased mindfulness after art-making.

Figure 2

Mandalas with Repeated Creative Elements and Self-Soothing Techniques



Note. 20 year-old Black/African American female in journaling condition with decreased anxiety and decreased mindfulness after art making.

Figure 3

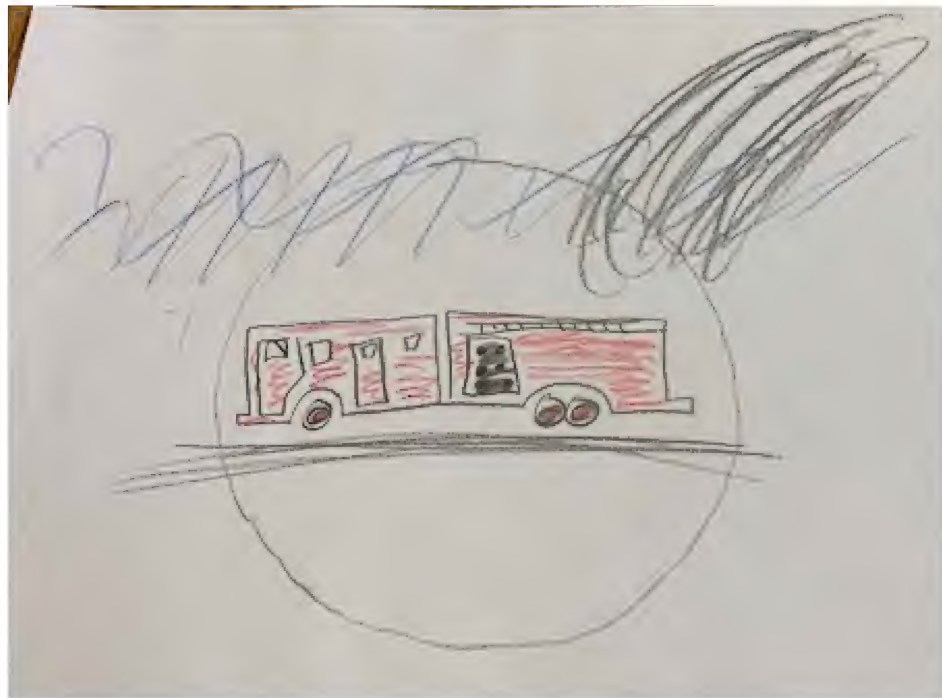
Mandala with No Lines or Focal Points



Note. 27 year-old Asian male in single mandala condition with increased anxiety and increased mindfulness after art making.

Figure 4

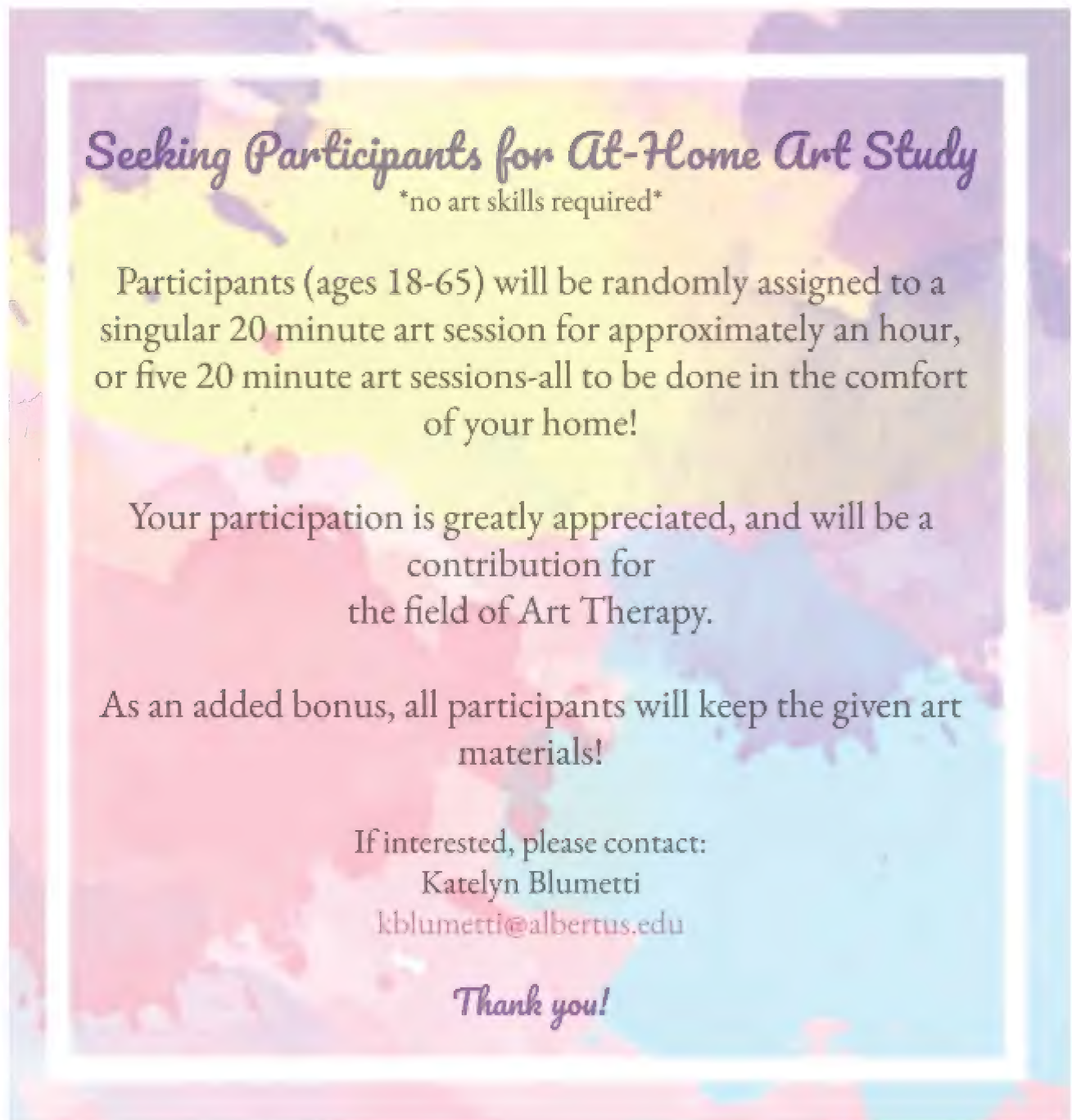
Mandala Inspired from Work Radio Background



Note. 54 year-old Caucasian male in single mandala condition with increased anxiety and decreased mindfulness after art making.

Appendix A

Recruitment Flyer



Appendix B

Informed Consent Form

You are being asked to participate in a study by Katelyn Blumetti, related to one of the requirements of the Masters of Arts in Art Therapy and Counseling degree at Albertus Magnus College. The purpose of this study is to examine the effects of art making. As a participant you will be asked to complete brief forms and questionnaires and engage in singular or multiple sessions of twenty minute art-making. It is projected that the results of this study will contribute to the field of art therapy.

There are no potential risks for the involvement of this study. All forms and questionnaires will be completed anonymously. Participation in this study is voluntary, and you are free to withdraw at any time. Photos of artwork will be collected and kept confidential.

For any questions or concerns concerning this research, you may contact the following individuals:

The Investigator: Katelyn Blumetti - kblumetti@albertus.edu

Art Therapy Advisor: Abbe Miller, PhD - amiller@albertus.edu

Psychology Advisor: Loel Tronsky, PhD - ltronsky@albertus.edu

Chair of IRB: Joshua Abreu, PhD - jabreu1@albertus.edu

By signing this form, I agree that I am 18 years of age and have read and understood the above information regarding this study. I agree to participate in this study and have been copy of this form.

Name of Participant (please print)

Signature of Participant

Date

I would like to receive a copy of the generalized, not aggregated results once the study has been completed.

E-mail address

Appendix C

Image Release Form

Please print this page out and check off your preference.

☐ I agree that photographed images of my artwork can be used for educational purposes including publications, presentations at professional conferences, or for training purposes

☐ I agree that photographed images of my artwork can be used for educational purposes including presentations at professional conferences or for training purposes, but not for publications

☐ I agree that photographed images of my artwork can be used for training purposes

☐ I do not give permission for my artwork to be photographed for any of the above purposes

Appendix D
Demographic Form

Please provide a response for each of the following statements:

1. Please provide your age:

2. Please select the best option. I currently identify my gender as...

Male Female Nonbinary Prefer not to respond

Self describe _____

3. I identify my race as (circle all that apply)...

Asian Black/African American Prefer not to respond White

American Indian Alaska Native Native Hawaiian

Other Pacific Islander Self describe _____

4. I identify my ethnicity...

Hispanic/Latinx Non Hispanic/Latinx

4. Have you ever practiced meditation?

Yes No

Appendix E

Debriefing Statement

“Mandalas and Anxiety”

Thank you for your participation in this study. The purpose of this study is to examine how the creation of mandalas may affect anxiety and mindfulness. Participants were randomly assigned to engage in singular mandala making, or continuous mandala making in a visual journal for five days. It was hypothesized that all participants would have a decrease in anxiety after art-making, with greater reduction of anxiety within the mandala journaling group. It was also hypothesized that those who engaged in visual journaling would have increased mindfulness. This supports the research that the creation of mandalas inherently reduces anxiety and promotes mindfulness and well-being.

If you are interested in learning more about the topic of this study, please review the following sources:

Henderson, P., Mascaró, N. & Rosen, D. (2007). Empirical study on the healing nature of mandalas. *Psychology of Aesthetics, Creativity, and the Arts*, 1(3), 148-154.

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<http://doi.org/10.1016/j.aip.2009.12.003>

If you experienced any anxiety during or after the completion of this study, the following resources are available:

24 Hour Anxiety Hotline: 1(800) 950-6264

Mental Health Text to Chat. (2021). Retrieved from: <https://www.remedylive.com/anxiety>